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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,792	11/25/2003	Donald Ray Disney	03692.P059DC	7244
27660	7590	03/19/2004	EXAMINER	
BURGESS & BEREZNAK LLP			NHU, DAVID	
800 WEST EL CAMINO REAL			ART UNIT	
SUITE 180			PAPER NUMBER	
MOUNTAIN VIEW, CA 94040			2818	

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,792

Applicant(s)

DISNEY, DONALD RAY

Examiner

David Nhu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 6-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 34-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/278,551.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTIONS

Double Patenting

1. Claims 1-5, 34-44 of Application No. 10/722,792 are divisionally/provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 6-59 of copending Application No. 10/278,551 filed 10/22/02. This is a divisional/provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 34-44 are rejected under 35 U.S.C. 102(b) as being anticipated Baliga (5,998,833).

Regarding claims 1, Baliga, figures 1-7, and related text on col. 1-18, (figures 4A-4K, 5-7, col. 8, lines 22-67, col. 6, lines 1-19, col. 9-12, lines 1-67), disclose a method of fabricating an extended drain region of a high-voltage transistor comprising: forming an epitaxial layer 12 on a substrate 10, the epitaxial layer being of a first conductivity type and having a top surface 15a (see figures 4A-4K); etching the epitaxial layer to form a pair of spaced-apart trenches 20 that defines a mesa 126 with first and second sidewall portions 120a (see figure 5); forming a dielectric/insulating layer 24, 28, 124 in each of the trenches, the dielectric layer partially filling each of the trenches and covering the first and second sidewall portions 20a, 120a; filling a remaining portion of the trenches with a conductive material 26, 28, 126, to form first and

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second field plate members 136, 138 that are insulated from the substrate 10 and the epitaxial layer 12.

Regarding claim 34, Baliga, figures 1-7, and related text on col. 1-18, (figures 4A-4K, 5-7, col. 8, lines 22-67, col. 6, lines 1-19, col. 9-12, lines 1-67), disclose a method of fabricating an extended drain region of a high-voltage transistor comprising: forming an epitaxial layer 12 on a substrate 10, the epitaxial layer being of a first conductivity type; etching the epitaxial layer to define a mesa 126 having first and second sidewall portions 120a and a top surface 15a (see figure 5, 4A); forming a dielectric/insulating layer 24, 28, 124 that covers the first and second sidewall portions 20a, 120a; forming first and second field plate members 136, 138 of a conductive material insulated from the first and second sidewall portions of the mesa 126, respectively, by the dielectric layer 124.

Regarding to claims 2-5, 35-44, Baliga, figures 1-7, col. 1-18, further teach forming a source region of the first conductivity type at the top surface of the epitaxial layer, the extended drain region being defined between the source region and the substrate; forming a source electrode connected to the source region and a drain electrode connected to the substrate; wherein the dielectric layer and a field plate members are formed with a reduced spacing between the field plate members and the epitaxial layer near the top surface of the epitaxial layer as compared to near the substrate; wherein the first conductivity type is N-type; wherein the epitaxial layer is formed a doping concentration that is lower near the top surface, as compared to near the substrate; wherein the epitaxial layer is formed with a linearly graded doping profile; wherein the dielectric layer comprises silicon dioxide; wherein the field plate members comprise doped polysilicon; thinning the substrate prior to formation of the drain electrode; wherein the

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substrate is of the first conductivity type; wherein the trenches extend through the epitaxial layer into the substrate.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Williams'608, Floyd'216 are cited as of interest.
5. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see 710.02 (b)).
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Nhu, (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM. The examiner's supervisor, David Nelms can be reached on (571)272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956

David Nhu



March 5, 2004